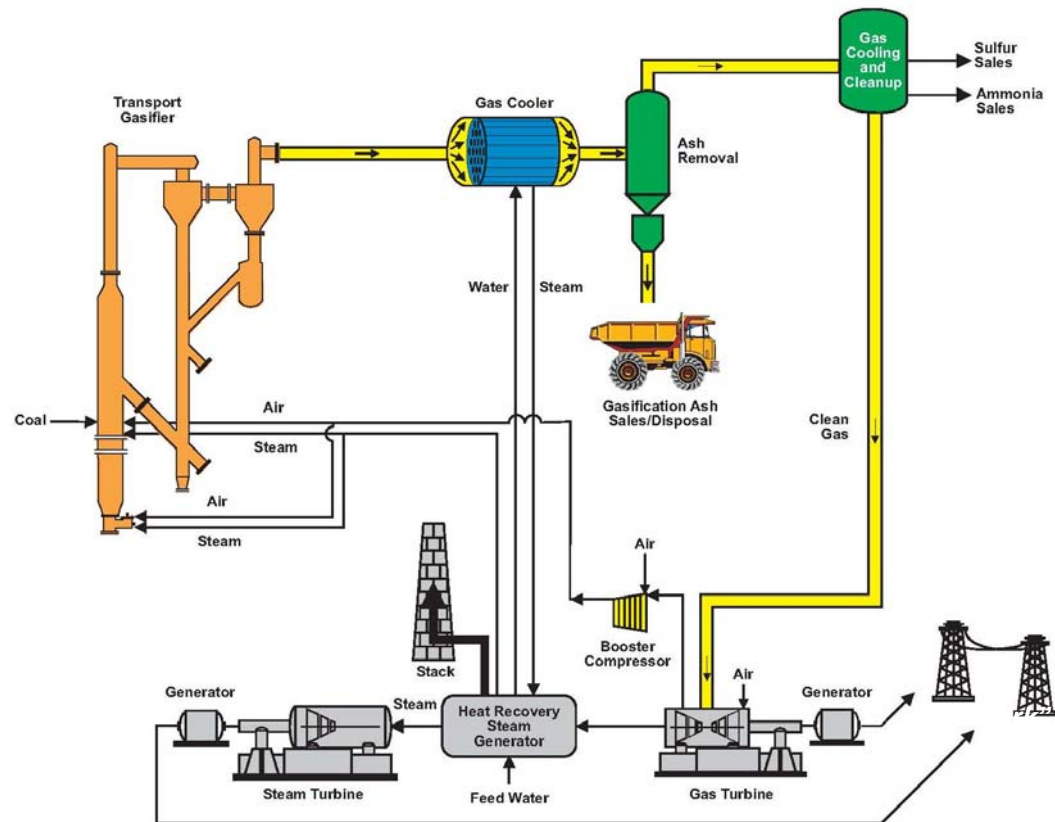


Southern Company Services, Inc.

- Air-blown Integrated Gasification Combined Cycle (IGCC) plant using technology already proven in the petroleum refining industry.
- Fuel flexible design is environmentally compliant and will readily adapt to possible future greenhouse gas management requirements.
- Total Project funding: \$557 million (DOE Share: \$235 million).
- 3,300 tons sub-bituminous coal per day producing 285 MW electricity.



A CCPI Round 2 Project



Background

- **The coal-based transport gasifier has a fuel-flexible design projected to have higher efficiency and lower capital and operating costs than the currently available oxygen-blown entrained-flow gasifiers.**
 - **Transport gasifier technology used successfully for over 50 years in the petroleum refining industry.**
- **Team members include:**
 - Southern Company Services, Inc. (Birmingham, AL)
 - Southern Power Company (Birmingham, AL)
 - Orlando Utilities Commission (Orlando, FL)
 - Kellogg Brown and Root (Houston, TX)



– Background

- Fuel
 - U.S. Powder River Basin (Sub-bituminous coal)
- **Coal Input: 3,300 Tons/Day; Electrical Output: 285-MW**
- **The Demonstration Plant will be built in Orange County, Florida and co-owned by Orlando Utilities Commission and Southern Power Company.**



Technology Uniqueness

- **Adapts petroleum refining industry transport reactor technology to IGCC design.**
- **Process of producing coal gas uses oxygen in the air. Does not require the costly separation of oxygen from the air as in oxygen-blown gasifiers.**
 - Offers a simpler and more efficient method of power generation than other existing IGCC designs.
 - Capable of both air- and oxygen-blown operation.
- **Economics preserved when incorporating CO₂ capture and sequestration into design.**



Schedule

- **Project Starts**
 - November 2005
- **NEPA Process**
 - NEPA Record of Decision: Expected November 2006
- **Design**
 - Project Definition and Front End Engineering Design: November 2005 to October 2007
 - Detailed Design: November 2007 to October 2008
- **Construction**
 - July 2008 to December 2010
- **Operation**
 - January 2011 to June 2015
- **Project Complete**
 - June 2015



– Potential Benefits

- **Can process low rank coals and coals with a high moisture or high ash content**
 - These coals make up half the proven reserves in both the U.S. and the world.
- **Higher efficiency inherent in combined cycle technology**
 - Operates at a heat rate of 8,400 Btu/kWh (40.6% efficiency)
- **Lower operating costs due to the fuel-flexible design.**
- **Increased value and use of the nation's sub-bituminous reserves.**
- **Using the oxygen in the air, instead of oxygen separation:**
 - simplifies the design and reduces capital and operating costs.
 - increases electrical output by eliminating the energy requirement for additional process equipment.

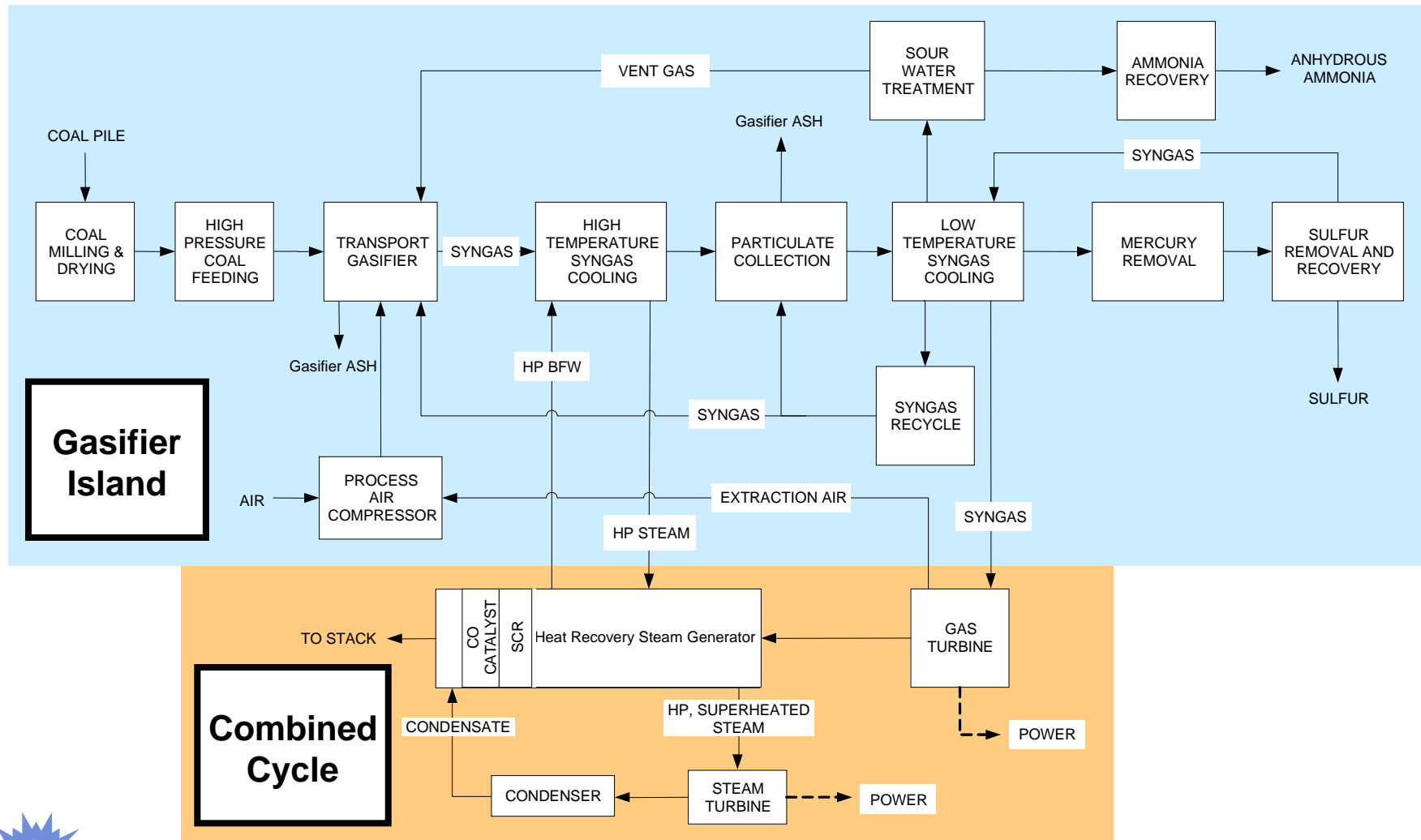


– Potential Benefits

- This technology will readily adapt to possible future greenhouse gas management requirements.
- Reduced water consumption is incorporated into the design.
- Beneficial uses for gasifier ash have been identified.
- Projected to achieve high environmental emissions standards for SO₂, NO_x, particulate emissions, and mercury.



Orlando Utilities Commission/Southern Company Services IGCC Summary Flow Diagram



Demonstration of a 285-MW Coal-Based Transport Gasifier

July 2005